



Thiago Almeida Pereira

Instructor, Institute for Stem Cell Biology and Regenerative Medicine

Bio

BIO

Dr. Thiago Almeida Pereira graduated from Federal University of Espírito Santo (Vitória, ES, Brazil) in 2008 with a Bachelor's of Science in Biology. During this time, Dr. Pereira joined the Human Genetics and Molecular Biology Center and investigated the role of TP53 Ser249 mutation in liver cirrhosis and Hepatocellular carcinoma and evaluated if aflatoxin contamination was associated with liver cancer in Espírito Santo State, Brazil. In 2009, Dr. Pereira started his graduate work at Federal University of Espírito Santo (Vitória, ES, Brazil) and Duke University (Durham, NC, USA) where he investigated the role of the Hedgehog pathway in viral hepatitis B and C and hepatocellular carcinoma, under supervision of Prof. Fausto E L Pereira and Prof. Anna Mae Diehl. After defending his master with thesis in infectious diseases in 2011, Dr. Pereira joined the PhD program in Pathology at Federal University of Bahia (Salvador, BA, Brazil), Oswaldo Cruz Foundation (Salvador, BA, Brazil) and Duke University (Durham, NC, USA). Dr. Pereira investigated the role of hedgehog pathway in human and experimental schistosomiasis mansoni under guidance of Prof. Zilton A. Andrade, Prof. José Roberto Lambertucci and Prof. Anna Mae Diehl. In 2016, Dr. Pereira joined Dr. Tom Wynn's lab at the Immunopathogenesis section of the Laboratory of Parasitic Diseases of the National Institute of Allergy and Infectious Diseases as a postdoctoral fellow. His research focused on fibrosis pathogenesis, identifying key signaling pathways for therapeutic intervention, and biomarker discovery. To further dissect the role of the Hedgehog pathway in fibrosis, regeneration, and cancer, Dr. Pereira joined Professor Philip Beachy's lab at Stanford University School of Medicine in 2018 as a postdoctoral fellow. Dr. Pereira is currently an Instructor at The Institute for Stem Cell Biology and Regenerative Medicine at Stanford University School of Medicine where he conducts research on liver fibrosis and carcinogenesis focusing on schistosomiasis, non-alcoholic fatty liver disease, hepatocellular carcinoma, and hedgehog signaling.

ACADEMIC APPOINTMENTS

- Instructor, Institute for Stem Cell Biology and Regenerative Medicine

HONORS AND AWARDS

- Presidential Poster of Distinction, American Association for the Study of Liver Diseases (2023)
- José Pellegrino Award - Best Doctoral Thesis, Oswaldo Cruz Foundation (2018)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Global Health Faculty Fellow, Center for Innovation in Global Health, Stanford University (2022 - present)
- Associate Editor, Parasite Immunology, Frontiers in Immunology (2022 - present)
- Research Topic Editor, Frontiers in Immunology (2018 - present)
- Guest Associate Editor, Microbial Immunology, Frontiers in Immunology (2018 - present)
- Member, Amaury Coutinho Award Committee, Oswaldo Cruz Foundation (2022 - present)
- Member, Scientific Advisory Committee, XVI International Symposium on Schistosomiasis, Oswaldo Cruz Foundation (2020 - present)
- Member, Liver Fibrosis Special interest Group, Membership & Mentorship Subcommittee, American Association for the Study of Liver Diseases (2018 - 2020)

- Member, American Society of Tropical Medicine and Hygiene (2017 - present)
- Member, American Association for the Study of Liver Diseases (2017 - present)
- Member, Sigma Xi (2023 - present)
- Member, American Heart Association (2022 - present)
- Invited member, European Association for the Study of the Liver (2015 - 2016)

PROFESSIONAL EDUCATION

- BSc, Federal University of Espírito Santo , Genetics, Molecular Biology (2008)
- MSc, Federal University of Espírito Santo and Duke University , Infectious Diseases (2011)
- PhD, Federal University of Bahia, Oswaldo Cruz Foundation and Duke University , Pathology (2015)

LINKS

- Research Gate Profile: https://www.researchgate.net/profile/Thiago_Pereira10
- Loop Profile: <https://loop.frontiersin.org/people/437239/overview>
- My Pubmed bibliography: [https://www.ncbi.nlm.nih.gov/sites/myncbi/thiago.de almeida pereira.1/bibliography/52420923/public/?sort=date&direction=ascending](https://www.ncbi.nlm.nih.gov/sites/myncbi/thiago.de%20almeida%20pereira.1/bibliography/52420923/public/?sort=date&direction=ascending)
- ORCID: <https://orcid.org/0000-0002-8755-0683>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research focus on fibrosis pathogenesis, identifying key pathways for therapeutic intervention and biomarker discovery. I'm currently investigating the Hedgehog pathway in liver and lung fibrotic diseases, such as schistosomiasis mansoni, alcoholic and non-alcoholic fatty liver disease, viral hepatitis B and C, idiopathic pulmonary fibrosis. I'm also investigating the role of tumor associated macrophages and cancer associated fibroblasts in liver and head and neck cancers.

Publications

PUBLICATIONS

- **Serum osteopontin is a biomarker of severe fibrosis and portal hypertension in human and murine schistosomiasis mansoni** *INTERNATIONAL JOURNAL FOR PARASITOLOGY*
Pereira, T. A., Syn, W., Pereira, F. E., Lambertucci, J. R., Secor, W. E., Diehl, A. M.
2016; 46 (13-14): 829-832
- **Osteopontin Is Upregulated in Human and Murine Acute Schistosomiasis Mansoni** *PLOS NEGLECTED TROPICAL DISEASES*
Pereira, T. A., Syn, W., Amancio, F. F., Diniz Cunha, P. H., Morais Caporali, J. F., de Melo Trindade, G. V., Santos, E. T., Souza, M. M., Andrade, Z. A., Witek, R. P., Secor, W. E., Lima Pereira, F. E., Lambertucci, et al
2016; 10 (10)
- **Macrophages and endothelial cells orchestrate tumor-associated angiogenesis in oral cancer via hedgehog pathway activation** *TUMOR BIOLOGY*
Valverde, L. d., Pereira, T. d., Dias, R. B., Nazare Guimaraes, V. S., Goncalves Ramos, E. A., Santos, J. N., Gurgel Rocha, C. A.
2016; 37 (7): 9233-9241
- **Schistosome-induced cholangiocyte proliferation and osteopontin secretion correlate with fibrosis and portal hypertension in human and murine schistosomiasis mansoni** *CLINICAL SCIENCE*
Pereira, T. A., Syn, W., Machado, M. V., Vidigal, P. V., Resende, V., Voietta, I., Xie, G., Otoni, A., Souza, M. M., Santos, E. T., Chan, I. S., Trindade, G. V., Choi, et al
2015; 129 (10): 875-883
- **Macrophage-derived hedgehog ligands promotes fibrogenic and angiogenic responses in human schistosomiasis mansoni** *LIVER INTERNATIONAL*
Pereira, T. A., Xie, G., Choi, S. S., Syn, W., Voietta, I., Lu, J., Chan, I. S., Swiderska, M., Amaral, K. B., Antunes, C. M., Secor, W. E., Witek, R. P., Lambertucci, et al
2013; 33 (1): 149-161

- **Viral factors induce Hedgehog pathway activation in humans with viral hepatitis, cirrhosis, and hepatocellular carcinoma** *LABORATORY INVESTIGATION*
Pereira, T. d., Witek, R. P., Syn, W., Choi, S. S., Bradrick, S., Karaca, G. F., Agboola, K. M., Jung, Y., Omenetti, A., Moylan, C. A., Yang, L., Fernandez-Zapico, M. E., Jhaveri, et al
2010; 90 (12): 1690-1703
- **TARGETING THE HEDGEHOG PATHWAY TRANSCRIPTION EFFECTOR Gli2 IS A NOVEL THERAPEUTIC STRATEGY FOR SEVERE SCHISTOSOMIASIS MANSONI FIBROSIS AND PORTAL HYPERTENSION**
Pereira, T., Vidigal, P., Diehl, A., Wynn, T., Beachy, P.
LIPPINCOTT WILLIAMS & WILKINS.2023: S1547-S1548
- **Role of the IL-33/ST2 Activation Pathway in the Development of the Hepatic Fibrosis Induced by Schistosoma mansoni Granulomas in Mice** *International Journal of Molecular Sciences*
Maggi, L., Camelo, G. M., Rocha, I. C., Alves, W. P., Moreira, J. M., Pereira, T. A., Tafuri, W. L., Rabelo, É. M., Correa, A., Ecco, R., Negrão-Corrêa, D. A.
2023; 24 (12)
- **Arsenic Trioxide Triggers Apoptosis of Metastatic Oral Squamous Cells Carcinoma with Concomitant Downregulation of GLI1 in Hedgehog Signaling.** *Biomedicines*
Nogueira, R. L., de Araujo, T. B., Valverde, L. F., Silva, V. A., Cavalcante, B. R., Rossi, E. A., Allahdadi, K. J., Dos Reis, M. G., Pereira, T. A., Coletta, R. D., Bezerra, D. P., de Freitas Souza, B. S., Dias, et al
2022; 10 (12)
- **Identification of a minority population of LMO2+ breast cancer cells that integrate into the vasculature and initiate metastasis.** *Science advances*
Sikandar, S. S., Gulati, G. S., Antony, J., Fetter, I., Kuo, A. H., Ho, W. H., Haro-Acosta, V., Das, S., Steen, C. B., Pereira, T. A., Qian, D., Beachy, P. A., Dirbas, et al
2022; 8 (45): eabm3548
- **EDTA-dependent pseudothrombocytopenia in patients with hepatosplenic schistosomiasis mansoni: a clinical management alert** *TRANSACTIONS OF THE ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE*
de Melo Trindade, G., Pereira, T., de Moraes Caporali, J., de Melo Trindade, D., Roriz, S., Vaz de Melo, P., Lambertucci, J.
2021; 115 (10): 1168-1173
- **Quality of Life Assessment Among Patients Living With Hepatosplenic Schistosomiasis and Schistosomal Myeloradiculopathy** *FRONTIERS IN MEDICINE*
Roriz, S., Pereira, T., de Melo Trindade, G., de Moraes Caporali, J., Lambertucci, J.
2021; 8: 629484
- **Praziquantel pharmacotherapy reduces systemic osteopontin levels and liver collagen content in murine schistosomiasis mansoni.** *International journal for parasitology*
Pereira, T. A., Vaz de Melo Trindade, G., Trindade Santos, E., Pereira, F. E., Maria de Souza, M.
2021
- **Editorial: Pre-Conference Research Topic: 16th International Symposium on Schistosomiasis.** *Frontiers in immunology*
Fonseca, C. T., Pereira, T. A., Stothard, J. R., Caldeira, R. L., Mourao, M. M.
1800; 12: 774311
- **Inhibition of CAL27 Oral Squamous Carcinoma Cell by Targeting Hedgehog Pathway With Vismodegib or Itraconazole** *FRONTIERS IN ONCOLOGY*
Freitas, R., Dias, R., Vidal, M., Valverde, L., Gomes Alves Costa, R., Damasceno, A., Sales, C., Siquara da Rocha, L., dos Reis, M., Soares, M., Coletta, R., Pereira, T., Bezerra, et al
2020; 10: 563838
- **GANT61 Reduces Hedgehog Molecule (GLI1) Expression and Promotes Apoptosis in Metastatic Oral Squamous Cell Carcinoma Cells.** *International journal of molecular sciences*
Bacelar Sacramento de Araújo, T. n., de Oliveira Siquara da Rocha, L. n., Torres Andion Vidal, M. n., Cerqueira Coelho, P. L., Galvão Dos Reis, M. n., Solano de Freitas Souza, B. n., Botelho Pereira Soares, M. n., Almeida Pereira, T. n., Della Coletta, R. n., Pereira Bezerra, D. n., Borges Dias, R. n., Araújo Gurgel Rocha, C. n.
2020; 21 (17)
- **Hedgehog pathway activation in oral squamous cell carcinoma: cancer-associated fibroblasts exhibit nuclear GLI-1 localization.** *Journal of molecular histology*
Guimaraes, V. S., Vidal, M. T., de Faro Valverde, L. n., de Oliveira, M. G., de Oliveira Siquara da Rocha, L. n., Coelho, P. L., Soares, F. A., de Freitas Souza, B. S., Bezerra, D. P., Coletta, R. D., Pereira, T. A., Dos Santos, J. N., Gurgel Rocha, et al
2020

- **Anti-IL-13R#2 therapy promotes recovery in a murine model of inflammatory bowel disease** *Mucosal Immunology*
 Karmele, E., Pasricha, T., Ramalingam, T., Thompson, R., Gieseck, R., Knilans, K., Hegen, M., Farmer, M., Jin, F., Kleinman, A., Hinds, D., The 23andMe Research Team, Pereira, T. A., et al
 2019
- **TARGETING THE HEDGEHOG PATHWAY IS A NOVEL THERAPEUTIC STRATEGY TO TREAT SCHISTOSOMIASIS FIBROSIS AND PORTAL HYPERTENSION**
 Pereira, T., Vidigal, P., Voietta, I., Resende, V., Witek, R., Jegga, A., Arron, J., Madala, S., Lambertucci, J., Diehl, A., Wynn, T., Beachy, P.
 AMER SOC TROP MED & HYGIENE.2019: 10–11
- **Emerging Role of HMGB1 in the Pathogenesis of Schistosomiasis Liver Fibrosis.** *Frontiers in immunology*
 Vicentino, A. R., Carneiro, V. C., Allonso, D., Guilherme, R. d., Benjamim, C. F., Dos Santos, H. A., Xavier, F., Pyrrho, A. D., Gomes, J. d., Fonseca, M. d., de Oliveira, R. C., Pereira, T. A., Ladislau, et al
 2018; 9: 1979
- **Bone marrow-derived monocyte infusion improves hepatic fibrosis by decreasing osteopontin, TGF-#1, IL-13 and oxidative stress.** *World journal of gastroenterology*
 de Souza, V. C., Pereira, T. A., Teixeira, V. W., Carvalho, H., de Castro, M. C., D'assunção, C. G., de Barros, A. F., Carvalho, C. L., de Lorena, V. M., Costa, V. M., Teixeira, Á. A., Figueiredo, R. C., de Oliveira, et al
 2017; 23 (28): 5146-5157
- **Thrombocytopenia as a marker of liver steatosis in a low-endemic area for schistosomiasis mansoni.** *Revista da Associacao Medica Brasileira (1992)*
 Otoni, A., Antunes, C. a., Tavares, F. F., Araújo, D. H., Pereira, T. d., Queiroz, L. C., Amâncio, F. F., Lambertucci, J. R.
 2017; 63 (6): 532-537
- **MCM3: A Novel Proliferation Marker in Oral Squamous Cell Carcinoma.** *Applied immunohistochemistry & molecular morphology : AIMM*
 Valverde, L. d., de Freitas, R. D., Pereira, T. d., de Resende, M. F., Agra, I. M., dos Santos, J. N., Dos Reis, M. G., Sales, C. B., Gurgel Rocha, C. A.
 2016: -?
- **Correction: Vestibular Evoked Myogenic Potential (VEMP) Triggered by Galvanic Vestibular Stimulation (GVS): A Promising Tool to Assess Spinal Cord Function in Schistosomal Myeloradiculopathy.** *PLoS neglected tropical diseases*
 Caporali, J. F., Gonçalves, D. U., Labanca, L., de Oliveira, L. D., Trindade, G. V., Pereira, T. d., Cunha, P. H., Mourão, M. S., Lambertucci, J. R.
 2016; 10 (5)
- **Caspase-2 promotes obesity, the metabolic syndrome and nonalcoholic fatty liver disease** *CELL DEATH & DISEASE*
 Machado, M. V., Michelotti, G. A., Jewell, M. L., Pereira, T. A., Xie, G., Premont, R. T., Diehl, A. M.
 2016; 7
- **Vitamin B5 and N-Acetylcysteine in Nonalcoholic Steatohepatitis: A Preclinical Study in a Dietary Mouse Model** *DIGESTIVE DISEASES AND SCIENCES*
 Machado, M. V., Kruger, L., Jewell, M. L., Michelotti, G. A., Pereira, T. d., Xie, G., Moylan, C. A., Diehl, A. M.
 2016; 61 (1): 137-148
- **In Vivo MRI Assessment of Experimental Schistosomiasis** *TRENDS IN PARASITOLOGY*
 Lambertucci, J. R., Mamede, M., Pereira, T. A.
 2016; 32 (1): 3-5
- **Accumulation of duct cells with activated YAP parallels fibrosis progression in non-alcoholic fatty liver disease** *JOURNAL OF HEPATOLOGY*
 Machado, M. V., Michelotti, G. A., Pereira, T. A., Xie, G., Premont, R., Cortez-Pinto, H., Diehl, A. M.
 2015; 63 (4): 962-970
- **Reduced lipoapoptosis, hedgehog pathway activation and fibrosis in caspase-2 deficient mice with non-alcoholic steatohepatitis** *GUT*
 Machado, M. V., Michelotti, G. A., Pereira, T. d., Boursier, J., Kruger, L., Swiderska-Syn, M., Karaca, G., Xie, G., Guy, C. D., Bohinc, B., Lindblom, K. R., JOHNSON, E., Kornbluth, et al
 2015; 64 (7): 1148-U226
- **Mouse Models of Diet-Induced Nonalcoholic Steatohepatitis Reproduce the Heterogeneity of the Human Disease** *PLOS ONE*
 Machado, M. V., Michelotti, G. A., Xie, G., de Almeida, T. P., Boursier, J., Bohnic, B., Guy, C. D., Diehl, A. M.
 2015; 10 (5)
- **Repair-Related Activation of Hedgehog Signaling in Stromal Cells Promotes Intrahepatic Hypothyroidism** *ENDOCRINOLOGY*

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- Bohinc, B. N., Michelotti, G., Xie, G., Pang, H., Suzuki, A., Guy, C. D., Piercy, D., Kruger, L., Swiderska-Syn, M., Machado, M., Pereira, T., Zavacki, A. M., Abdelmalek, et al
 2014; 155 (11): 4591-4601
- **Osteopontin is up-regulated in chronic hepatitis C and is associated with cellular permissiveness for hepatitis C virus replication.** *Clinical science*
 Choi, S. S., Claridge, L. C., Jhaveri, R., Swiderska-Syn, M., Clark, P., Suzuki, A., Pereira, T. A., Mi, Z., Kuo, P. C., Guy, C. D., Pereira, F. E., Diehl, A. M., Patel, et al
 2014; 126 (12): 845-855
 - **Alcohol activates the hedgehog pathway and induces related procarcinogenic processes in the alcohol-preferring rat model of hepatocarcinogenesis.** *Alcoholism, clinical and experimental research*
 Chan, I. S., Guy, C. D., Machado, M. V., Wank, A., Kadiyala, V., Michelotti, G., Choi, S., Swiderska-Syn, M., Karaca, G., Pereira, T. A., Yip-Schneider, M. T., Max Schmidt, C., Diehl, et al
 2014; 38 (3): 787-800
 - **Brain schistosomiasis in mice experimentally infected with *Schistosoma mansoni*.** *Revista da Sociedade Brasileira de Medicina Tropical*
 Lambertucci, J. R., Fidelis, T. A., Pereira, T. A., Coelho, P. M., Araujo, N., Souza, M. M., Brasileiro Filho, G., Pereira, F. E., Antunes, C. M.
 2014; 47 (2): 251-253
 - **Hepatocellular carcinoma and liver cirrhosis TP53 mutation analysis reflects a moderate dietary exposure to aflatoxins in Espirito Santo State, Brazil** *MOLECULAR BIOLOGY REPORTS*
 de Carvalho, F. M., Pereira, T. d., Goncalves, P. L., Jarske, R. D., Lima Pereira, F. E., Louro, I. D.
 2013; 40 (8): 4883-4887
 - **Paracrine Hedgehog Signaling Drives Metabolic Changes in Hepatocellular Carcinoma** *CANCER RESEARCH*
 Chan, I. S., Guy, C. D., Chen, Y., Lu, J., Swiderska-Syn, M., Michelotti, G. A., Karaca, G., Xie, G., Krueger, L., Syn, W., Anderson, B. R., Pereira, T. A., Choi, et al
 2012; 72 (24): 6344-6350
 - **NKT-associated hedgehog and osteopontin drive fibrogenesis in non-alcoholic fatty liver disease** *GUT*
 Syn, W., Agboola, K. M., Swiderska, M., Michelotti, G. A., Liaskou, E., Pang, H., Xie, G., Philips, G., Chan, I. S., Karaca, G. F., Pereira, T. d., Chen, Y., Mi, et al
 2012; 61 (9): 1323-1329
 - **Osteopontin is Induced by Hedgehog Pathway Activation and Promotes Fibrosis Progression in Nonalcoholic Steatohepatitis** *HEPATOLOGY*
 Syn, W., Choi, S. S., Liaskou, E., Karaca, G. F., Agboola, K. M., Oo, Y. H., Mi, Z., Pereira, T. A., Zdanowicz, M., Malladi, P., Chen, Y., Moylan, C., Jung, et al
 2011; 53 (1): 106-115
 - **Activation of Rac1 Promotes Hedgehog-Mediated Acquisition of the Myofibroblastic Phenotype in Rat and Human Hepatic Stellate Cells** *HEPATOLOGY*
 Choi, S. S., Witek, R. P., Yang, L., Omenetti, A., Syn, W., Moylan, C. A., Jung, Y., Karaca, G. F., Teaberry, V. S., Pereira, T. A., Wang, J., Ren, X., Diehl, et al
 2010; 52 (1): 278-290
 - **Accumulation of Natural Killer T Cells in Progressive Nonalcoholic Fatty Liver Disease** *HEPATOLOGY*
 Syn, W., Oo, Y. H., Pereira, T. A., Karaca, G. F., Jung, Y., Omenetti, A., Witek, R. P., Choi, S. S., Guy, C. D., Fearing, C. M., Teaberry, V., Pereira, F. E., Adams, et al
 2010; 51 (6): 1998-2007
 - **Pan-Caspase Inhibitor VX-166 Reduces Fibrosis in an Animal Model of Nonalcoholic Steatohepatitis** *HEPATOLOGY*
 Witek, R. P., Stone, W. C., Karaca, F. G., Syn, W., Pereira, T. A., Agboola, K. M., Omenetti, A., Jung, Y., Teaberry, V., Choi, S. S., Guy, C. D., Pollard, J., Charlton, et al
 2009; 50 (5): 1421-1430
 - **Hedgehog-Mediated Epithelial-to-Mesenchymal Transition and Fibrogenic Repair in Nonalcoholic Fatty Liver Disease** *GASTROENTEROLOGY*
 Syn, W., Jung, Y., Omenetti, A., Abdelmalek, M., Guy, C. D., Yang, L., Wang, J., Witek, R. P., Fearing, C. M., Pereira, T. A., Teaberry, V., Choi, S. S., Conde-Vancells, et al
 2009; 137 (4): 1478-1488
 - **Genetic differences in oxidative stress and inflammatory responses to diet-induced obesity do not alter liver fibrosis in mice** *LIVER INTERNATIONAL*
 Syn, W., Yang, L., Chiang, D. J., Qian, Y., Jung, Y., Karaca, G., Choi, S. S., Witek, R. P., Omenetti, A., Pereira, T. A., Diehl, A. M.
 2009; 29 (8): 1262-1272
 - **Sensitivity and specificity of the circulating cathodic antigen rapid urine test in the diagnosis of Schistosomiasis mansoni infection and evaluation of morbidity in a low- endemic area in Brazil.** *Revista da Sociedade Brasileira de Medicina Tropical*

Ferreira, F. T., Fidelis, T. A., Pereira, T. A., Otoni, A. n., Queiroz, L. C., Amâncio, F. F., Antunes, C. M., Lambertucci, J. R.
; 50 (3): 358–64